

CLAIMS

What is claimed is:

1. An improved stripline structure, comprising:

a sheet metal enclosure including top and bottom sheet metal covers for housing a
5 stripline structure; and

a primary printed wiring board (PWB) disposed horizontally between the top and
bottom sheet metal covers, and extending across the interior of the enclosure, the primary
PWB including a plurality of conductive transmission lines.

10 2. The improved stripline structure according to Claim 1, further including at
least two electrical connectors electrically coupled to the primary PWB.

3. The improved stripline structure according to Claim 1, wherein the top and
bottom sheet metal covers each include a plurality of flanges extending outwardly from the
15 enclosure, the primary PWB extending outside of the enclosure and being coupled to both
the top and bottom sheet metal cover flanges.

4. The improved stripline structure according to Claim 1, wherein the top and
bottom sheet metal covers are coupled to the primary PWB by means of a plurality of
20 alignment pegs partially inserted through the primary PWB.

5. The improved stripline structure according to Claim 1, wherein the sheet metal enclosure is box-shaped.

6. The improved stripline structure according to Claim 5, wherein the sheet metal is folded by a stamping process.

7. The improved stripline structure according to Claim 1, wherein the top and bottom sheet metal covers are each coupled to ground.

8. The improved stripline structure according to Claim 1, wherein the primary PWB has a top layer and a bottom layer, the conductive transmission lines being formed on both the top layer and the bottom layer, and the conductive transmission lines formed on the top layer being identical to the conductive transmission lines formed on the bottom layer.

9. The improved stripline structure according to Claim 8, wherein the primary PWB includes a series of plated through holes for electrically coupling the conductive transmission lines formed on both sides of the primary PWB.

10. The improved stripline structure according to Claim 1, further comprising a secondary PWB mounted inside the enclosure, the secondary PWB having at least one conductive transmission line formed apart from and parallel to the conductive transmission lines on the primary PWB.

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11. The improved stripline structure according to Claim 10, further including a secondary PWB mount fabricated from sheet metal for coupling the secondary PWB to the interior of the top cover.

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12. The improved stripline structure according to Claim 11, wherein the secondary PWB provides cross-coupling between the conductive transmission line on the secondary PWB and selected ones of the conductive transmission lines on the primary PWB.

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13. The improved stripline structure according to Claim 11, wherein the improved suspended stripline structure is an RF filter.

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14. The improved stripline structure according to Claim 1, wherein the primary PWB has a top layer and a bottom layer, the conductive transmission lines being formed on both the top layer and the bottom layer, and the conductive transmission lines formed on the top layer being different from the conductive transmission lines formed on the

bottom layer.

15. The improved stripline structure according to Claim 14, wherein the improved suspended stripline structure is a cross coupled RF filter.

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16. The improved stripline structure according to Claim 1, wherein the improved filter is configured for operating at high power up to 1 kW.

17. The improved stripline structure according to Claim 1, wherein the improved filter is configured for operating at large bandwidths up to 50 GHz.

18. An improved cross coupled radio frequency (RF) filter comprising:
a sheet metal enclosure including top and bottom sheet metal covers for housing a cross coupled RF filter, each one of the top and bottom covers having a plurality of flanges extending outwardly therefrom;

a primary printed wiring board (PWB) having a top layer and a bottom layer, the primary PWB being horizontally disposed between the top and bottom covers and extending across the interior of the enclosure, the primary PWB being coupled to the plurality of top and bottom cover flanges, and the primary PWB having a plurality of conductive RF transmission lines, wherein the plurality of conductive RF transmission lines are formed on both sides of the primary PWB, and wherein the primary PWB

includes a series of plated through holes for electrically coupling the conductive RF transmission lines on both sides of the primary PWB;

input and output electrical connectors electrically coupled to the primary PWB;
and

5 a secondary PWB mounted inside the enclosure, the secondary PWB having at least one conductive RF transmission line spaced apart from and parallel to the conductive RF transmission lines on the primary PWB.

19. The improved cross coupled RF filter according to Claim 18, further
10 comprising a secondary PWB mount fabricated from sheet metal for coupling the secondary PWB to the interior of the top cover.

20. The improved cross coupled RF filter according to Claim 19, wherein the
secondary PWB provides cross-coupling with selected ones of the conductive RF
15 transmission lines on the primary PWB.

21. The improved cross coupled RF filter according to Claim 18, wherein the sheet metal enclosure is box-shaped.

20 22. The improved cross coupled RF filter according to Claim 18, wherein the improved filter is configured for operating at high power up to 1 kW.

23. The improved cross coupled RF filter according to Claim 18, wherein the improved filter is configured for operating at large bandwidths up to 50 GHz.

24. A method for fabricating an improved RF/microwave stripline structure,
5 comprising the steps of:

folding a pair of sheet metal members into top and bottom covers;

positioning a primary printed wiring board (PWB) having conductive transmission lines between the top and bottom covers while coupling a pair of RF/microwave connectors to both the primary PWB and to the bottom cover; and

10 coupling the top and bottom covers to the primary PWB.

25. The method according to Claim 24, further comprising the step of coupling a secondary PWB to the interior surface of the top cover before coupling the top and bottom covers to the primary PWB, wherein the primary and secondary PWB form a cross
15 coupled stripline structure.

26. A method for fabricating an improved radio frequency filter, comprising the steps of:

folding a pair of sheet metal members into top and bottom filter covers, the top

20 and bottom filter covers each having a plurality of flanges extending outwards therefrom;

positioning a primary printed wiring board (PWB) having conductive RF transmission lines onto the plurality of flanges of the bottom filter cover while coupling a pair of RF connectors to both the primary PWB and to the bottom cover; and

coupling the top and bottom covers to the primary PWB by securing the plurality
5 of top cover flanges to the top of the primary PWB and securing the plurality of bottom cover flanges to the bottom of the primary PWB.

27. The method according to Claim 26, further comprising the step of coupling
a secondary PWB to the interior surface of the top cover before coupling the top and
10 bottom covers to the primary PWB, wherein the primary and secondary PWB form a cross-coupled radio frequency filter.